Foot Controls

Overview

This section provides information for servicing A-dec foot controls. It includes tubing flow diagrams, exploded illustrations, and troubleshooting tips for Foot Control I, II and III.

Working with Foot Controls

A foot control is a foot-operated regulator. Handpieces are operated by using a foot control. A-dec foot controls are actuated by applying foot pressure on the foot control disk. The pressure applied to the disk pushes down on a valve assembly allowing air to flow from the valve to handpiece turbines. This turns on air and water coolant.

Foot Control Valves

The A-dec foot control valve has gone through a number of changes over the years. The type of foot control you have will determine the valve configuration.

In A-dec Foot Control I, the valve assembly is hex-shaped and uses a piston to actuate the handpieces. Foot Control II changed the body style of the valve assembly to a square shape and used a stem assembly for actuation. The Foot Control III valve assembly is also square but uses a piston for actuation.

In Foot Control I and Foot Control III, the piston seats the exhaust vent against the poppet and pushes it away from the inlet seat, which opens the valve. When pressure to the foot control cover is released the piston returns, closing the inlet and exhausting any pressure from the outlet side of the valve.

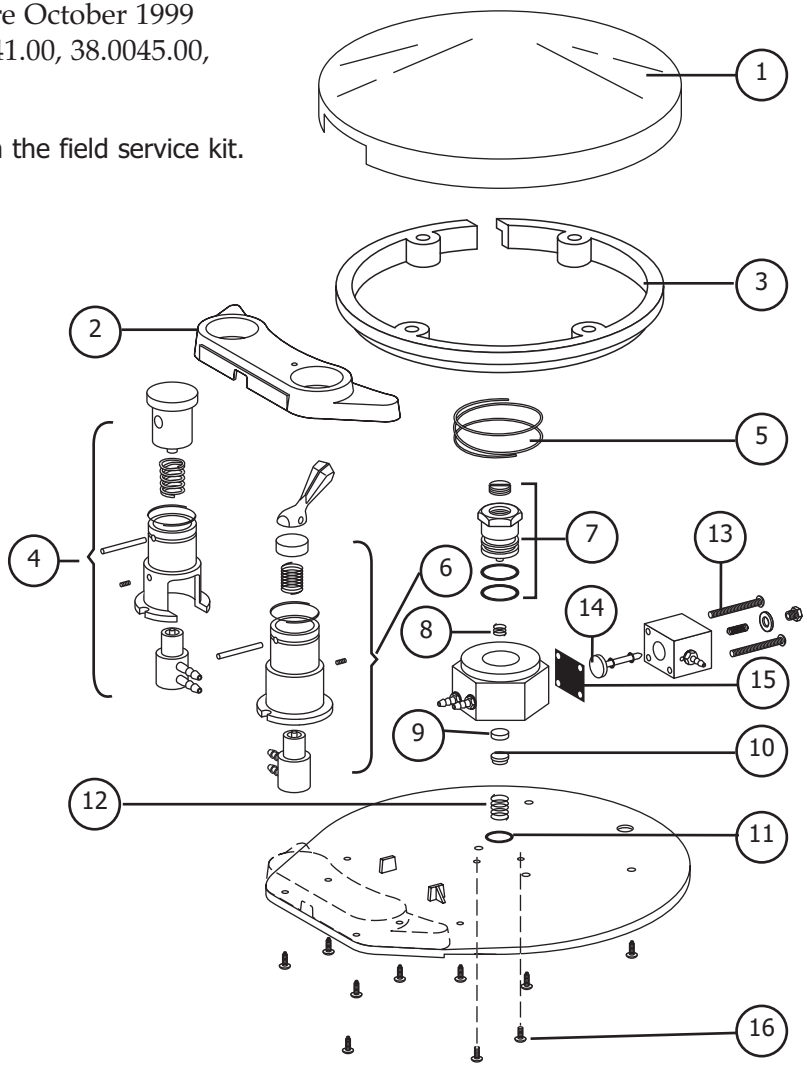
In Foot Control II, the foot pressure on the stem assembly passes the fluted surfaces of the stem to below the inlet o-ring seat, allowing air to flow to the outlet. When foot pressure is released the stem returns, sealing the inlet at the o-ring. Pressure from the outlet side of the valve is exhausted as the fluted stem moves above the outlet o-ring seal.

Foot Control I

This information applies to foot controls used before October 1999 (38.0010.00, 38.0035.00, 38.0039.00, 38.0040.00 38.0041.00, 38.0045.00, 38.0050.00, 38.0053.00 and 38.0061.00).

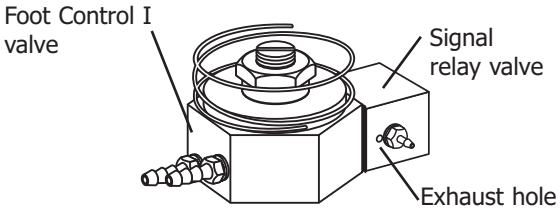
NOTE: Asterisk (*) signifies parts that are included in the field service kit.

Item #	Part Number	Description
—	90.0010.00	Foot Control I field service kit
1	22.0110.00	Foot control cover, fits all foot controls
2	38.0320.00 (01, 02) 38.0321.00 (01, 02)	Foot control housing, 1-hole Foot control housing, 2-hole
3	22.0120.00	FC I retaining ring (includes screws)
4	38.0610.00 38.0612.00	Chip blower valve Scaler valve
*5	22.0135.00	Spring
6	38.0604.00	Wet/dry toggle valve
7	22.0081.00	Piston assembly
*8	22.0580.00	Spring
*9	22.0060.00	Plastic poppet
10	22.0050.00	Spring cap
*11	030.016.02	O-ring pkg 10
*12	22.0040.00	Spring
*13	10.0440.00	Spring
*14	22.0778.00	Signal relay valve stem
*15	38.0054.02	Diaphragm pkg 10
16	002.015.00	Screw, pan head phillips pkg 2

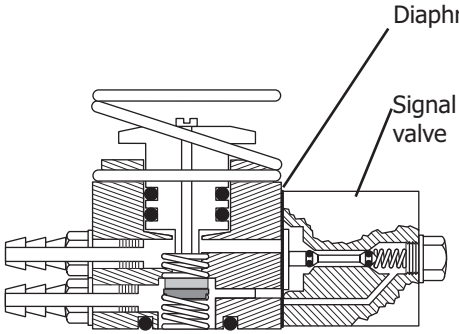


Foot Control I

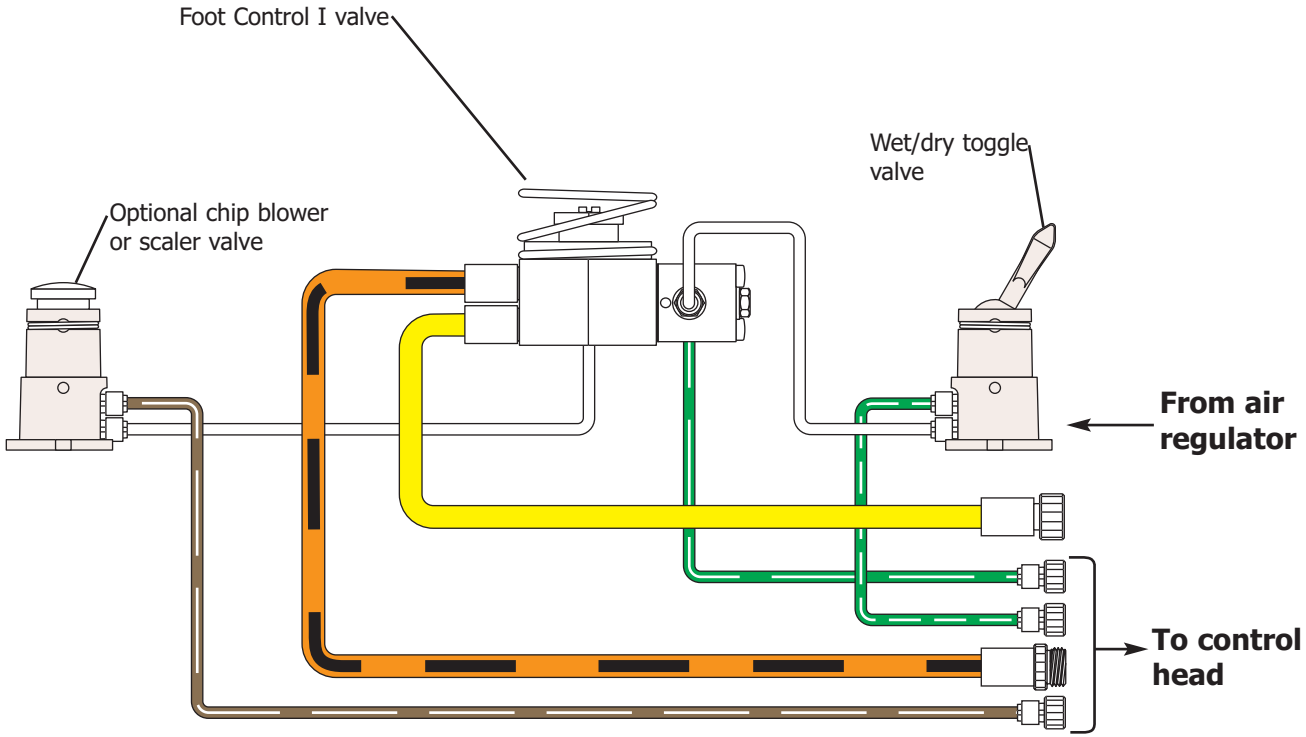
Foot Control I Flow Diagram



Foot Control I Valve Assembly



Foot Control I Cross View



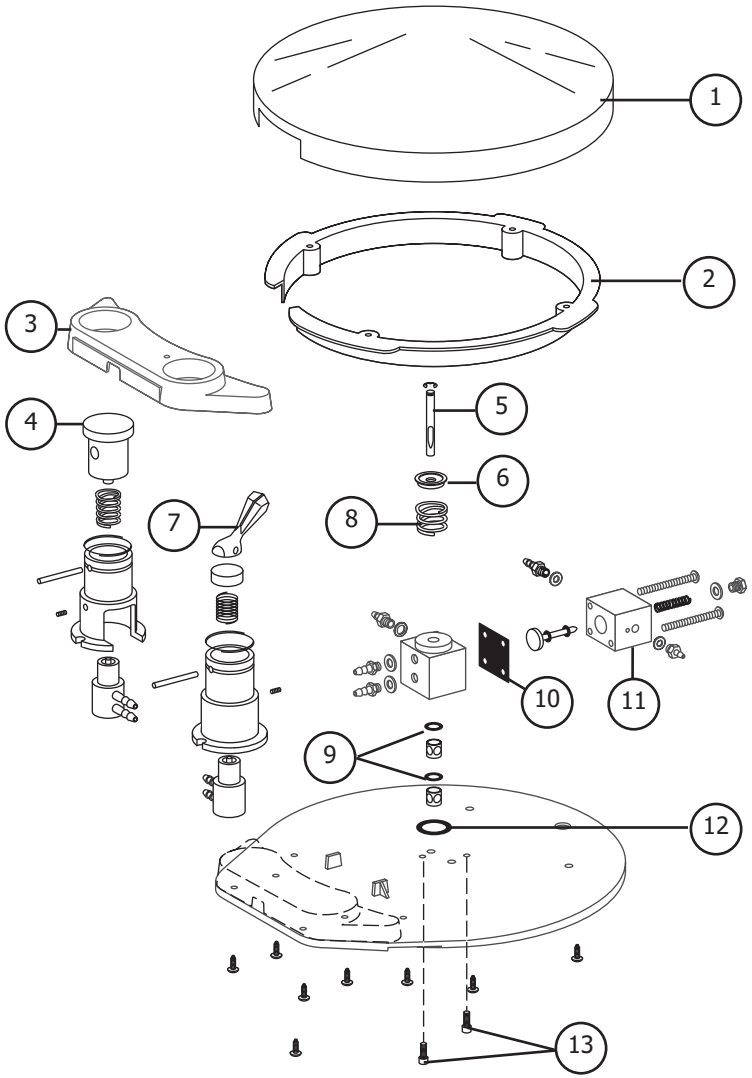
Foot Control II

NOTE: Asterisk (*) signifies parts that are included in the field service kit.

Item #	Part Number	Description
—	90.0312.00	Foot control II field service kit
1	22.0110.00	Foot control cover, fits all foot controls
2	38.0237.00	Retaining ring, internal, Black
3	38.0320.00 (01, 02)	Foot control housing, 1-hole
	38.0321.00 (01, 02)	Foot control housing, 2-hole
4	38.0610.00 38.0612.00	Chip blower valve Scaler valve
*5	38.0246.00	Stem with E-ring
*6	38.0552.00	Ring return valve stem
7	38.0604.00	Wet/dry toggle valve
*8	013.011.00	Spring
*9	030.008.02	O-ring, AS568-008
*10	38.0054.02	Diaphragm
11	38.0056.00	Replacement signal relay valve
*12	030.012.02	O-ring, AS568-012
13	003.078.00	Socket head screw

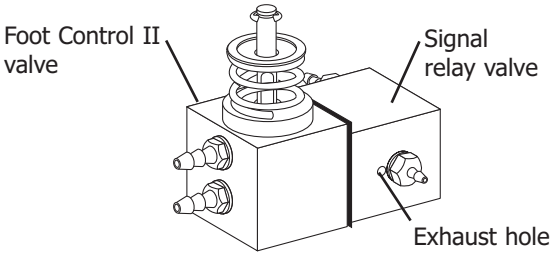
WARNING

Turn the master On/Off toggle to the **OFF** position and bleed system air pressure **before** removing the foot control disc to prevent the foot control stem from being forcefully ejected.

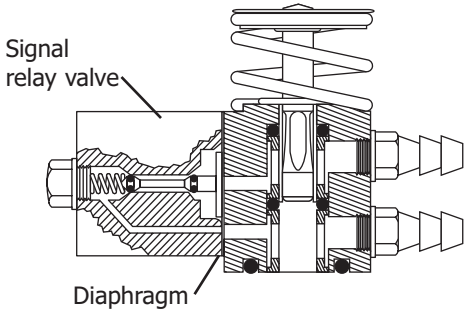


Foot Control II

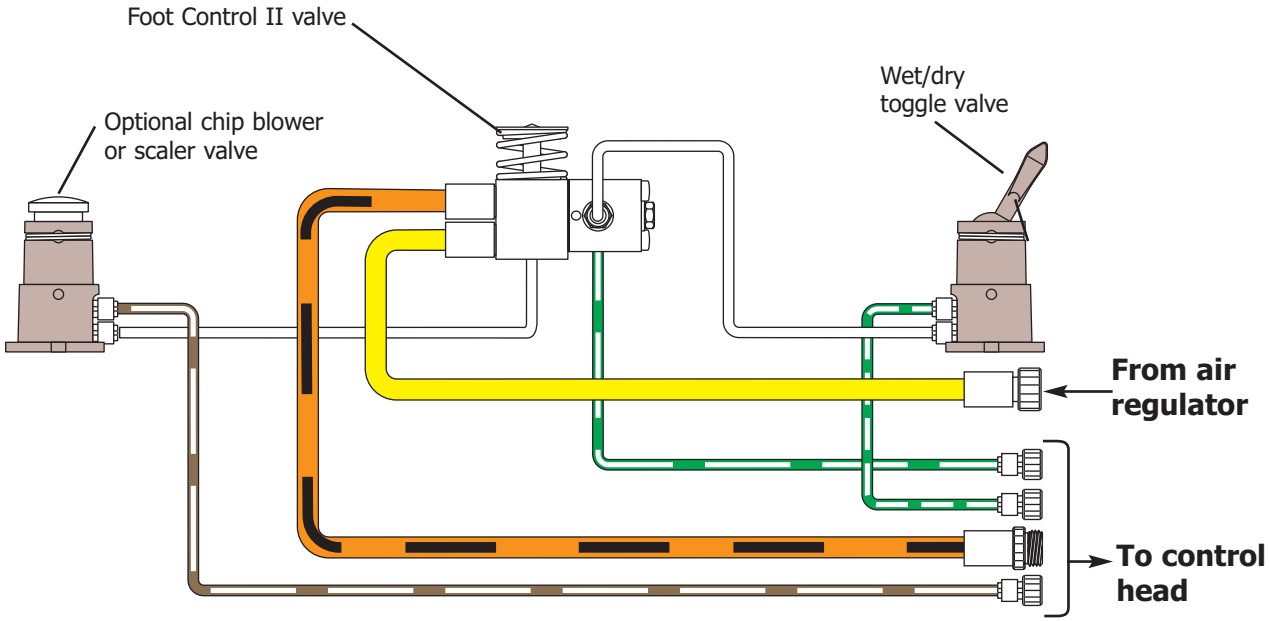
Foot Control II Flow Diagram



Foot Control II Valve Assembly



Foot Control II Cross View



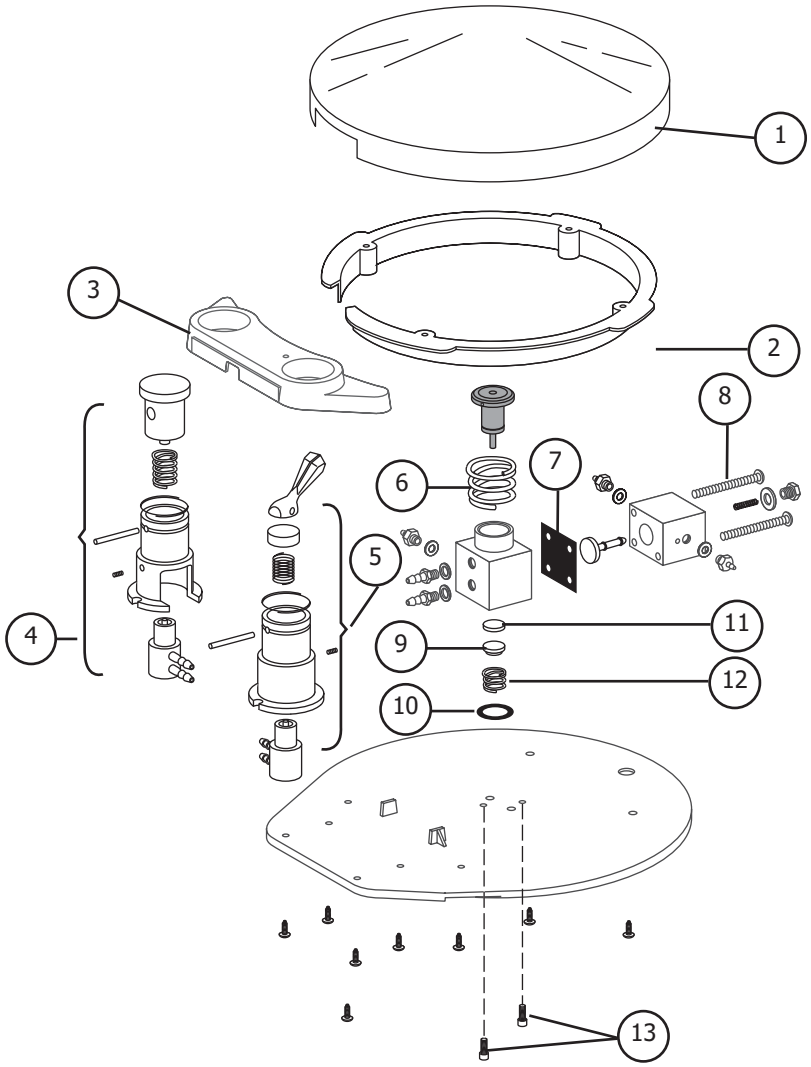
WARNING

When working on Foot Control II, move the master On/Off toggle to the OFF position and bleed the system of air pressure. Do this before removing the foot control disc to prevent the foot control stem from being forcefully ejected from the foot control valve.

Foot Control III

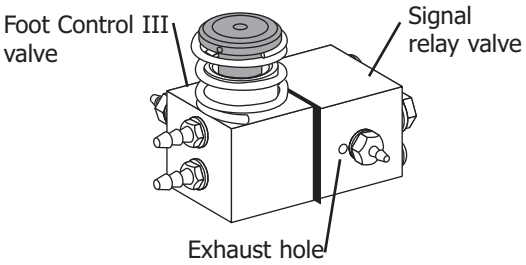
Use of Foot Control III began in March 1999.

Item #	Part Number	Description
—	90.0593.00	Foot Control III field service kit
—	38.1764.00	International conversion kit
1	22.0110.00	Foot control cover, fits all foot controls
2	38.0237.00	Retaining ring, internal, Black
3	38.0763.00 38.0321.00 (01, 02)	Foot control housing, 1-hole, Dark Surf Foot control housing, 2-hole
4	38.0610.00 38.0612.00	Chip blower valve Scaler valve
5	38.0604.00	Wet/dry toggle valve
6	013.011.00	Spring, helical compression
7	38.0054.02	Diaphragm
8	10.0440.00	Spring
9	22.0050.00	Spring cap
10	030.012.02	O-ring, AS568-012
11	22.0060.00	Poppet, plastic
12	22.0580.00	Spring
13	003.078.00	Socket head screw

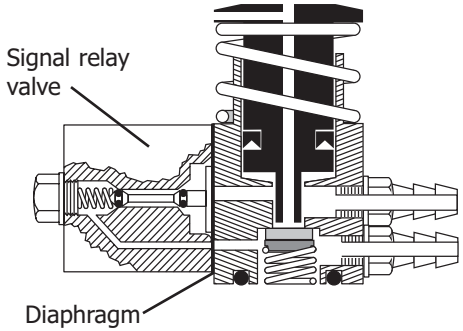


Foot Control III

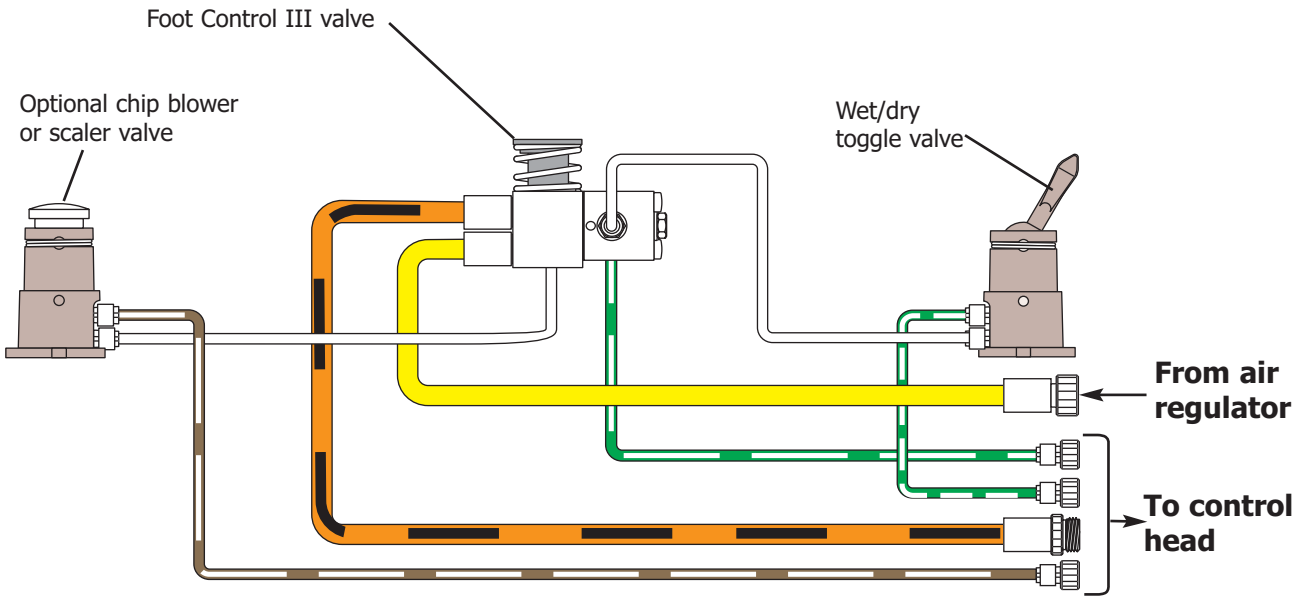
Foot Control III Flow Diagram



Foot Control III Valve Assembly



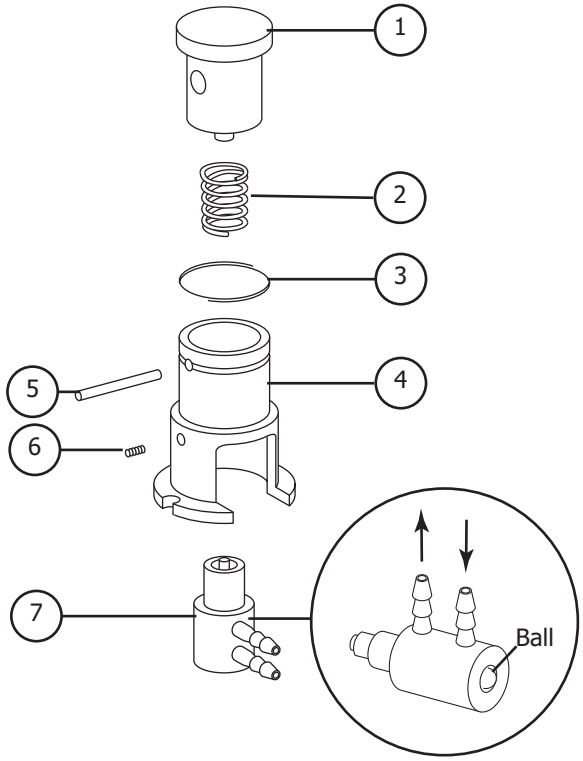
Foot Control III Cross View



Recognizing Parts for Chip Blower/Scaler Valve Assemblies

The chip blower is used to send a jet of air through the handpiece, to remove accumulated debris. Parts available for the chip blower/scaler valve assembly are detailed in the table.

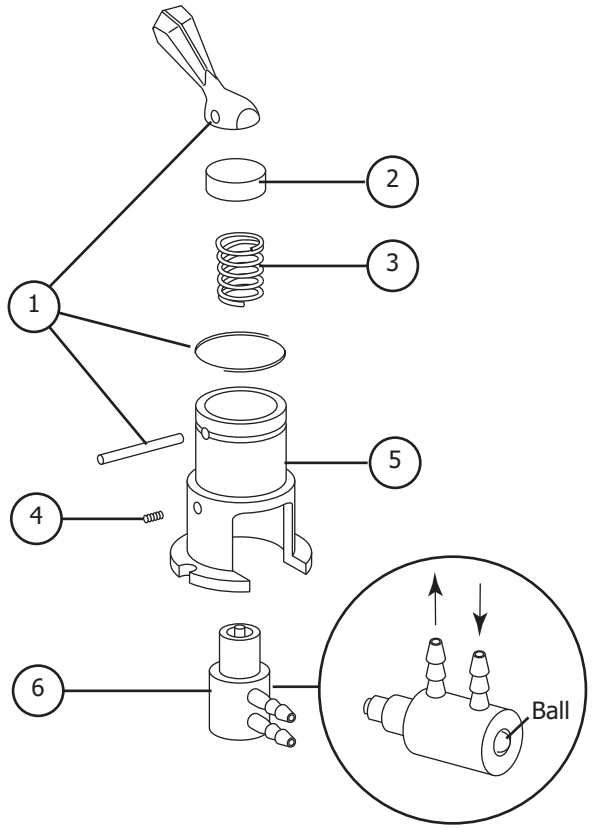
Item #	Part Number	Description
1	38.0070.00	Valve actuator button
2	22.0040.00	Spring
3	010.056.00	Retainer, spring
4	38.0072.03	Valve holder, Dark Surf
5	011.016.00	Pin
6	007.002.01	Set screw, socket cup point
7	33.0134.00 33.0138.00	2-way micro-valve (for chip blower - brass ball) 3-way micro-valve (for scaler - stainless steel ball)
—	38.0510.00	Chip blower valve
—	38.0612.00	Scaler valve assembly



Chip Blower Valve or Scaler Valve Assembly

Wet/Dry Valve Assembly

Item #	Part Number	Description
1	38.0075.03	Toggle kit (includes the spring, retainer and pin)
2	38.0066.00	Cap, spring
3	22.0040.00	Spring
4	007.002.01	Set screw, socket cup point
5	38.0072.03	Valve holder, Dark Surf
6	33.0138.00	3-way micro-valve (stainless steel ball)
—	38.0604.00	Wet/dry valve assembly
—	38.0075.03	Service kit



Wet/Dry Toggle Valve Assembly

Troubleshooting Foot Controls

Tips and troubleshooting information are listed in the following charts to assist in diagnosing foot control problems. These charts are not intended to cover every situation, but do try to include the most common problems you may encounter.

Problem	Action
Audible leakage when foot control is **not** being used	Do these steps in the order listed, until the leakage has stopped. **Task** **Descriptions** 1 Check mounting screws in the bottom of the baseplate to make sure they are tight. • If leakage has stopped, test unit. • If there is still audible leakage, continue with step 2. 2 Remove the cover and check the internal tubings for secure connections. 3 Check for leakage from the exhaust holes on the signal relay valve. If there is leakage, do the following • move the master On/Off toggle to the OFF position and bleed the system of air pressure • inspect the stem and o-rings for debris or defects, and • inspect the seat for debris or defects. 4 Replace any defective parts. Lubricate the o-rings, reassemble and test the foot control. 5 Check for leakage around the diaphragm. If there is leakage, do the following: • Tighten the two screws securing the signal relay valve to the foot control valve. If there's still leakage, replace the diaphragm.

Problem	Action
Audible leakage when foot control is in use	Do these steps in the order listed, until the leakage has stopped. **Task Descriptions** 1 Check for a failed diaphragm. • Tighten the two screws securing the signal relay valve to the foot control valve. If there is still leakage replace the diaphragm. • If there is still audible leakage, continue with step 2. 2 Check for leakage from the exhaust holes on the signal relay valve. If there is leakage, do the following • move the master On/Off toggle to the OFF position and bleed the system of air pressure • inspect the stem and o-rings for debris or defects, and • inspect the seat for debris or defects. 3 Replace any defective parts. Lubricate the o-rings, reassemble and test the foot control. 4 Check the outlet barb and tubing on the signal relay valve. Tighten the barb, or replace the tubing.

Problem	Action
Inadequate air flow	Check these in the following order. **Task** **Descriptions** 1 Check the air pressure. If the air pressure drops by more than 15 psi when syringe air button and foot control are depressed • Check for pinched foot control tubing. • Check for a plugged filter in the air filter/regulator (floor box). • Check for obstructed outlet barb on signal relay valve. 2 Move the master On/Off toggle to the OFF position and bleed the system of air pressure. 3 Remove debris and replace any defective parts in the valve assembly. Lubricate the o-rings, reassemble, and test the foot control.
Coolant water continues after release of foot control	Check these in the following order. 1 Check for a sticky signal relay valve. 2 Move the master On/Off toggle to the OFF position and bleed the system of air pressure. 3 Remove the signal relay valve, clean and lube the parts, and reassemble. 4 Test foot control. 5 Check for a kinked/plugged tubing somewhere between the foot control relay and the control head.

Problem	Action
Sluggish foot control	Follow these steps to test the response on the foot control.

Task	Descriptions
1	Check the valve stem to see if it is sticking.
2	Move the master On/Off toggle to the OFF position and bleed the system of air pressure.
3	Remove the signal relay valve, clean and lube the parts, and reassemble.
4	Test foot control.

Foot Controls

Notes